ATTACHMENT 2 -- FOR DISCUSSION ON MARCH 22, 2000

Decision Rules for Setting an NR 445 De Minimis (shading indicates differences)

Note: All NR 445 De Minimis values are based on allowable emissions.

Chemical Groups	**Existing NR 445**	**February 2000 WDNR Proposal**	**Parameters for TAG Discussion**
Non-Carcinogens Tables 1,2 &4*	9. De minimis based on 2.4% of TLV using two different stack heights.	9. Same as Current NR 445	9. Not open for reconsideration
Carcinogens Tables 3A & 3B	10. De minimis based with some regard to potency of carcinogens (not a good correlation and not well documented). If unknown potency then 25 lbs/yr (3A) and 250 lbs/yr (3B). De minimis is same for all stack heights.	10. See Issue Paper for Discussion	10. Open for reconsideration
Reference Concentrations Table 5	11. De minimis based on meeting the reference concentration using two different stack heights.	11. Same as Current NR 445	11. Not open for reconsideration
Clean Air Act Chemicals	12. Not Considered	12. Only listed if meet other listing criteria. Same deminimis levels as for other Table 1,2,3,5 chemicals	12. NA
Great Lakes Chemicals	13. Not Considered	13. Only listed if meet other listing criteria. Same deminimis levels as for other Table 1,2,3,5 chemicals	13. NA

*Chemicals currently listed in Table 4 of NR 445 are proposed to be combined into Table 1.

ISSUE PAPER

Issue: Setting de minimis levels for Table 3 chemicals. Changing the de minimis level potentially increases the number of sources that would be subject to the control technology standards.

Existing NR 445: Currently, de minimis values for most Table 3 chemicals are based on whether the chemical is a known carcinogen (Table 3A) or suspected carcinogen (Table 3B). The potency of the chemical is not typically considered in a quantified manner. The default de minimis rate for known carcinogens is 25 pounds per year; for suspected carcinogens, 250 pounds per year. As NR 445 is currently written, allowable emissions of Table 3A or 3B chemicals are used when comparing emissions to the de minimis

Proposed Decision Rule: Set de minimis values for Table 3 chemicals that correspond to the relative toxicity, or potency, of the chemical. This is more protective of public health than whether the chemical is a known or suspected carcinogen. Typically, when more scientific evidence becomes available, suspected carcinogens are found to be known carcinogens rather than non-carcinogenic.

Alternative 1A: Set de minimis values as the emission rate that corresponds with a health risk level for cancer of one additional case of cancer per 1 million people (1 in a million risk level, or 10^{-6}). For example, the state of California uses 10^{-6} as its de minimis value and EPA uses it when making decisions about residual risk.

Alternative 1B: Set de minimis values as the emission rate that corresponds with a health risk level for cancer of one additional case of cancer per 100,000 people (1 in a 100,000 risk level, or 10^{-5}). For example, the state of Minnesota proposes to use 10^{-5} as its de minimis value.

Alternative 2: Establish potency bins and group chemicals into low, medium, or high potency bins according to their unit risk factor[1]. Chemicals whose unit risk factor has not been established will be placed in the medium potency bin. Set de minimis values at:

Potency Bin	Unit Risk Factor Range	De Minimis
Low	< 5.4E-5	100 lb/year
Medium	5.4E-5 to 2.4E-3 No URF established	10 lb/year
High	>2.4E-3	1 lb/year
Extremely High	Dioxins, PCBs	Any emissions

Staff Prefferred Alternative: Alternative 2 is preferred by staff because it is:

- Simpler to use – there are only three de minimis levels (dioxins and PCBs are exceptions)
- A small change in the uncertainty factors won't change the bin and the de minimis levels that a chemical is in, thus the de minimis value is more stable
- This alternative establishes the same de minimis level for short and tall stacks, making rule compliance less complicated

The main disadvantage is that the de minimis emission rate is not strictly risk based. The de minimis reporting levels were placed into bins based on ranges of potencies and have been established at levels that minimize the likelihood of causing harm to human health or the environment.

[1] Unit Risk Factors are a measure of the potency of a known or suspected carcinogen. Unit Risk Factors are peer-reviewed measures that are established by USEPA and the California EPA. They are peer-reviewed internally and often externally. Unit Risk Factors are explicitly established for inhalation exposures. USEPA Unit Risk Factors were used. If a USEPA factor was not available, then the Unit Risk Factor established by California EPA was used. An analysis of all unit risk factor values available for NR 445 chemicals showed a high, medium, and low toxicity group with the unit risk factor range given in the table above. (Note: The statistical analysis performed was a cluster (natural breaks) analysis of 3 groups).